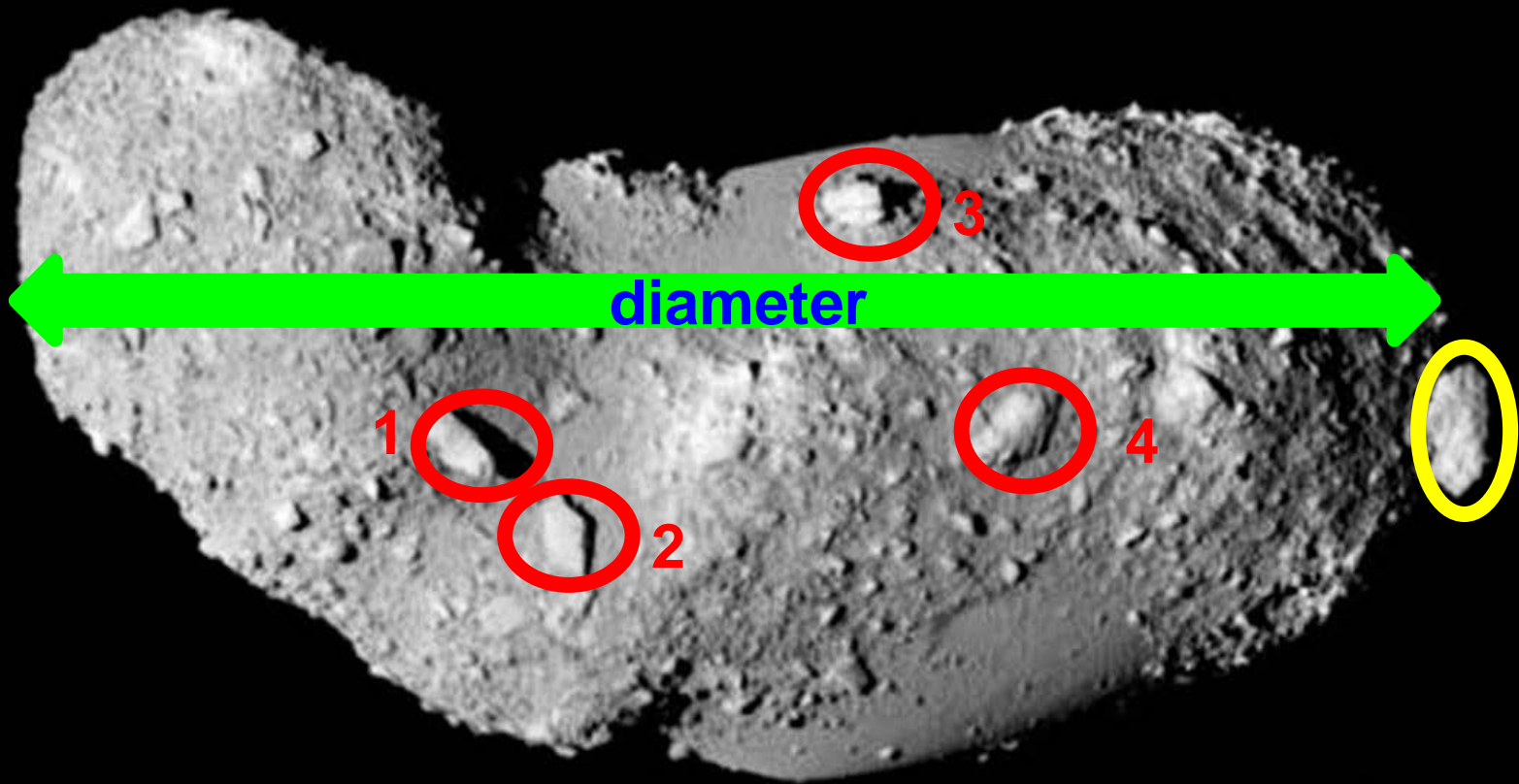


# Academy of the Holy Angels: Asteroid 101 Presentation



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diameter

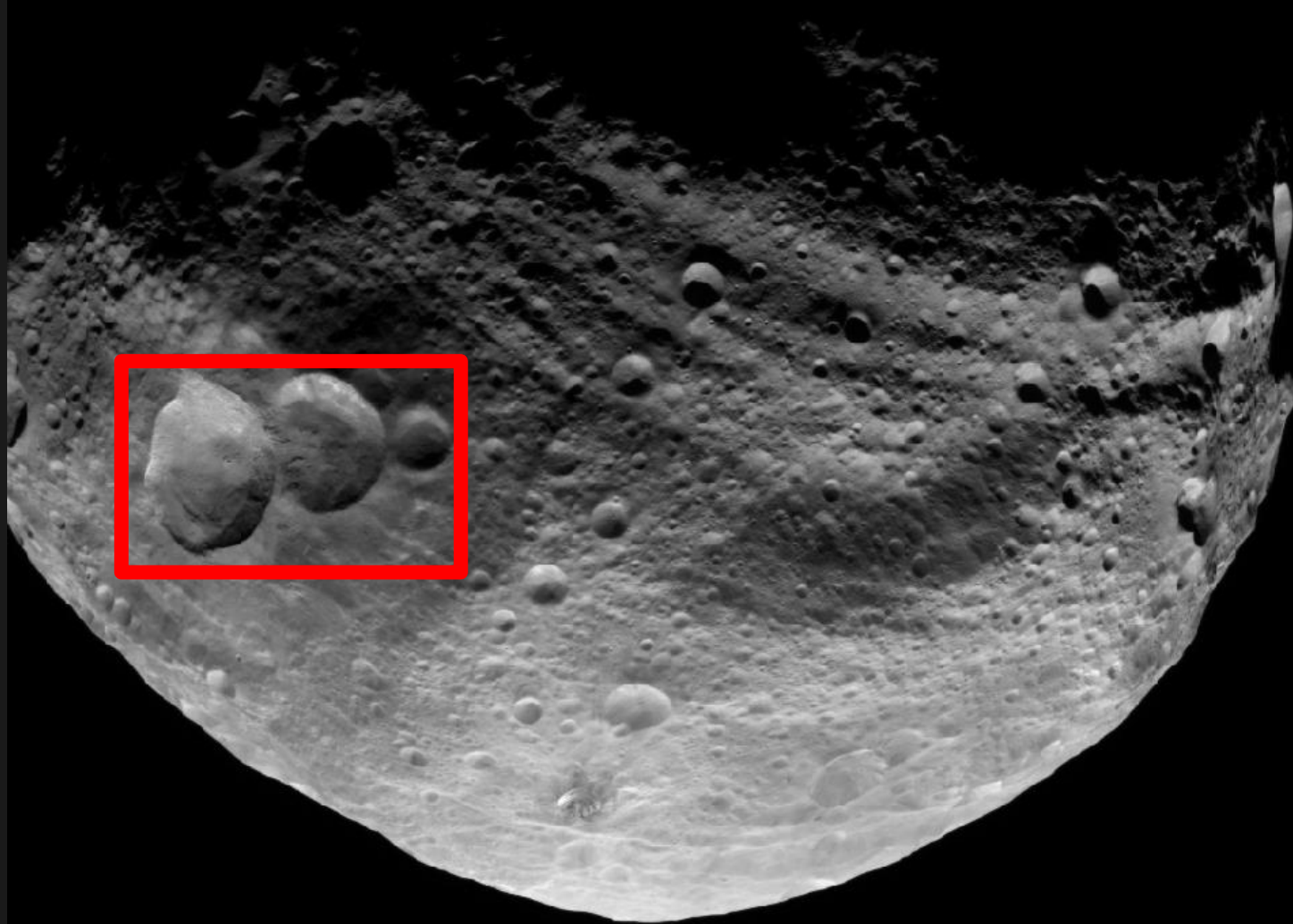
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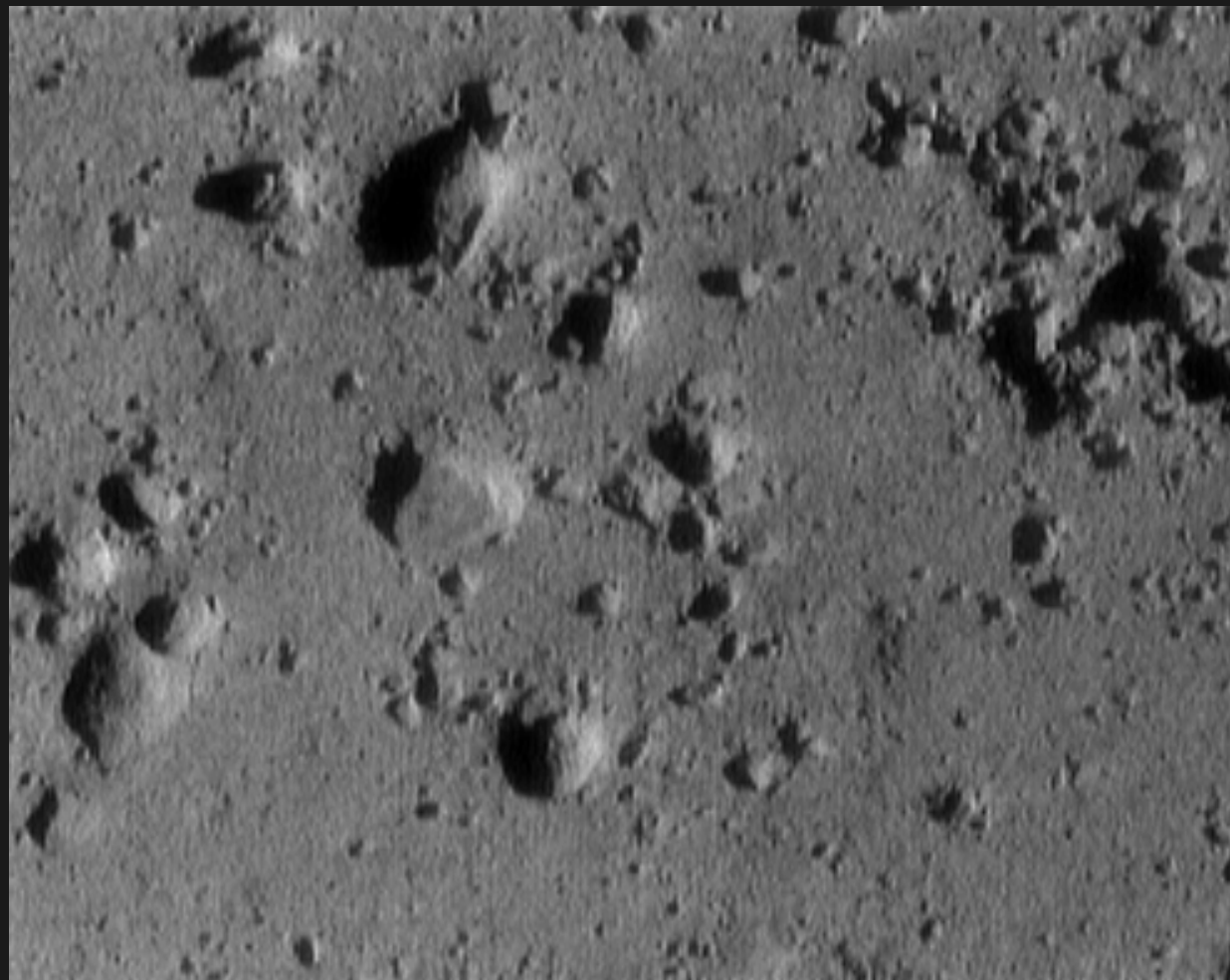
2

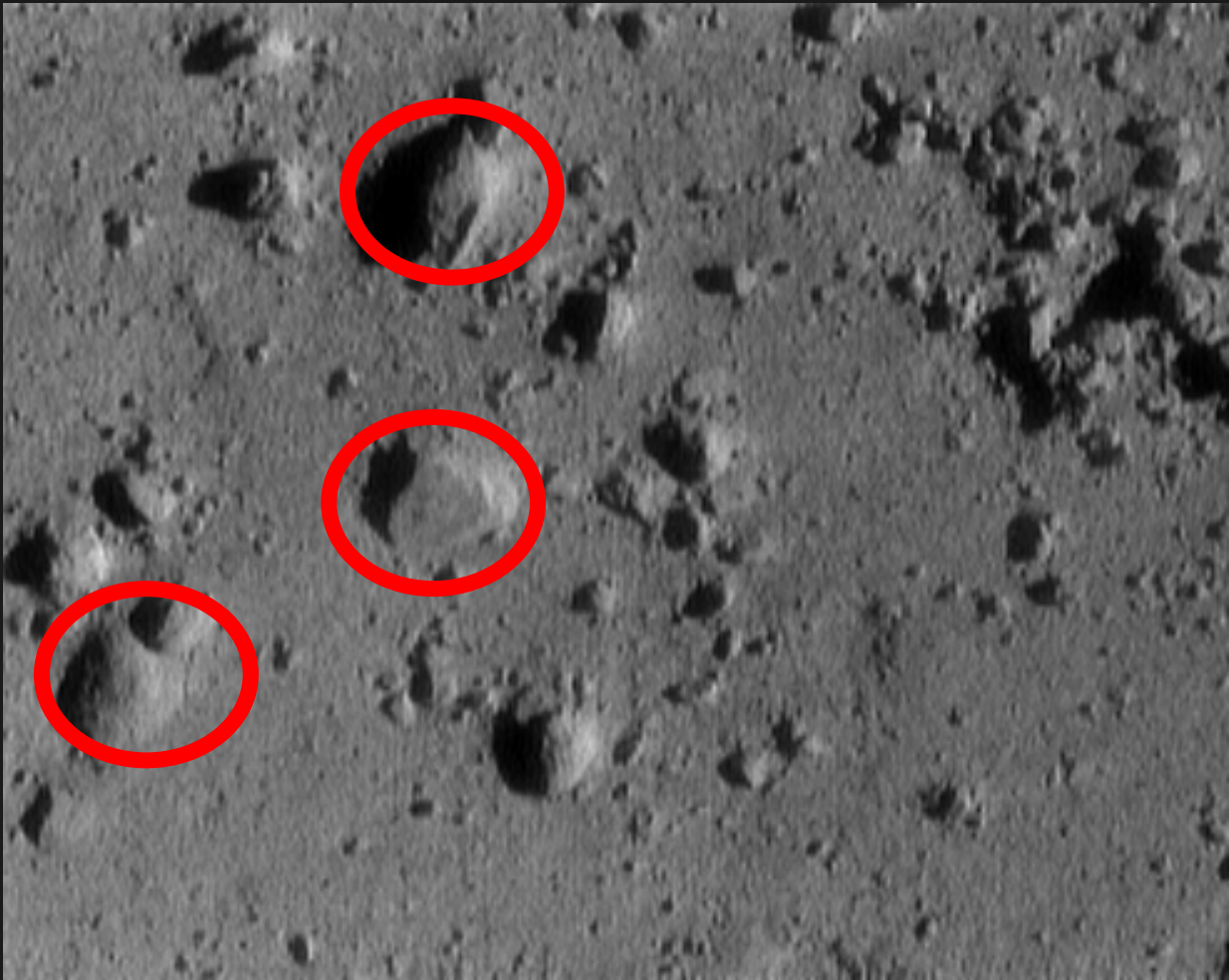
3

4









# Relationships

Equation:

$$D = \frac{1329 * 10^{-\frac{H}{5}}}{\sqrt{p_v}}$$

Where D is the diameter of the asteroid in kilometers

Where H is the absolute magnitude

Where  $p_v$  is the albedo



# Application of Relationship (Image 1)

$$\begin{aligned} D &= \frac{1329 \times 10^{-\frac{19.2}{s}}}{\sqrt{p_v}} \\ &= \frac{1329 \times 10^{-\frac{19.2}{s}}}{\sqrt{0.53}} \\ &= \frac{1329 \cdot 1.44 \times 10^{-4}}{0.73} \\ D &= 0.263 \text{ km} \approx 0.3 \text{ km} \checkmark \end{aligned}$$

## Application of Relationship (Image 2)

$$\begin{aligned} D &= \frac{1329 \times 10^{-\frac{4t}{5}}}{\sqrt{pv}} \\ &= \frac{1329 \times 10^{-\frac{3.2}{5}}}{\sqrt{0.423}} \\ &= \frac{1329 \cdot 0.229}{0.65} \\ D &= 468 \text{ km} \approx 470 \text{ km} \end{aligned}$$

## Application of Relationship (Image 3)

$$\begin{aligned} D &= \frac{1329 \times 10^{-\frac{11}{5}}}{\sqrt{p_v}} \\ &\downarrow \\ &= \frac{1329 \cdot 10^{-\frac{11.16}{5}}}{\sqrt{0.25}} \\ &\downarrow \\ &= \frac{1329 \cdot 0.0059}{0.5} \\ &\downarrow \\ &= 15.5 \end{aligned}$$

$D = 16 \text{ km} \approx 17 \text{ km}$